CLAIMS

1. A composite material comprising: a substance derived from a high polymer having a molar weight of 50-1,000,000, in which an atomic group including a heteroatom, such as nitrogen, oxygen or sulfur, exists in a main chain or a side chain; and nanocarbons.

2. A composite material produced by dispersing nanocarbons in a solution of a high polymer substance having a molar weight of 50-1,000,000, in which an atomic group including a heteroatom, such as nitrogen, oxygen or sulfur, exists in a main chain or a side chain, and drying the solution, whereby the nanocarbons are incorporate in the high polymer substance.

3. The composite material according to claim 1 or 2, wherein the composite material is formed into a film- or sheet-shape.

4. The composite material according to claim 1 or 2, wherein the composite material is formed into a grain-shape.

5. The composite material according to one of claims 1-4, wherein a weight of nanocarbons with respect to that of the high polymer substance is 1-30 wt%.

6. The composite material according to one of claims 1-5, wherein the high polymer substance contains amino acid, protein made from amino acid or peptide.

7. The composite material according to one of claims 1-5, wherein the high polymer substance is made from a silk material.

8. A carbonized composite material produced by burning the composite material according to one of claims 1-7.

9. The carbonized composite material according to claim 8, wherein the composite material is burned at temperature of 500-3000℃.

10. A method for producing a composite material,

comprising the steps of:

dispersing nanocarbons in a solution of a high polymer substance having a molar weight of 50-5,000,000, in which an atomic group including a heteroatom, such as nitrogen, oxygen or sulfur, exists in a main chain or a side chain; and

drying the solution, in which the nanocarbons are dispersed.

11. The method according to claim 10, further comprising the step of applying a magnetic field to the solution, in which the nanocarbons are dispersed, so as to orientate the nanocarbons.

12. The method according to claim 10 or 11, wherein a weight of nanocarbons with respect to that of the high polymer substance is 1-30 wt%.

13. The method according to one of claims 10-12, wherein the high polymer substance contains amino acid, protein made from amino acid or peptide.

14. The method according to one of claims 10-12, wherein the high polymer substance is a silk material.

15. A method for producing a carbonized composite material,

comprising the steps of:

dispersing nanocarbons in a solution of a high polymer substance, in which an atomic group including a heteroatom, such as nitrogen, oxygen or sulfur, exists in a main chain or a side chain;

drying the solution, in which the nanocarbons are dispersed; and

burning the dried substance.

16. The method according to claim 15, wherein the burning step includes the sub-steps of:

primary-burning at low temperature; and

secondary-burning at high temperature.

17. The method according to claim 15 or 16, wherein a weight of nanocarbons with respect to that of the high polymer substance is 1-30 wt%.

18. The method according to one of claims 15-17, wherein the high polymer substance contains amino acid, protein made from amino acid or peptide.

19. The method according to one of claims 15-17, wherein the high polymer substance is a silk material.